

What is claimed is:

1. An air conditioner, comprising:

a vapor compression refrigerant cycle including a compressor for compressing refrigerant, and an interior heat exchanger for adjusting a temperature of air to be blown into a compartment by performing heat exchange between refrigerant circulating in the vapor compression refrigerant cycle and the air to be blown into the compartment;

an actual capacity detecting means for detecting an actual capacity of the interior heat exchanger;

a target capacity determining means for determining a target capacity of the interior heat exchanger;

a first target rotation-speed determining means for determining a first control target rotation speed of the compressor based on a difference between the actual capacity detected by the actual capacity detecting means and the target capacity determined by the target capacity determining means;

a changing condition determining means for determining whether a rotation speed of the compressor needs to be changed by a change rate larger than a change rate of the first control target rotation speed, determined by the first target rotation-speed determining means; and

a second target rotation-speed determining means for determining a second control target rotation speed that is larger than the first control target rotation speed when the changing condition determining means determines that the rotation speed of the compressor needs to be changed by a

change rate larger than the change rate of the first control target rotation speed.

2. The air conditioner according to claim 1, wherein the changing condition determining means determines that the rotation speed of the compressor needs to be changed by a change rate larger than the change rate of the first control target rotation speed, when the compressor is started from a stop state.

3. The air conditioner according to claim 1, further comprising

a guard rotation speed determining means for determining a maximum permissible rotation speed of the compressor, wherein

the changing condition determining means determines that the rotation speed of the compressor needs to be changed by a change rate larger than the change rate of the first control target rotation speed determined by the first target rotation-speed determining means when the maximum permissible rotation speed determined by the guard rotation speed determining means increases and a difference between the control target rotation speed determined by the first target rotation-speed determining means and an actual rotation speed of the compressor is larger than a predetermined value.

4. The air conditioner according to claim 1, further

comprising

a guard rotation speed determining means for determining a maximum permissible rotation speed of the compressor, wherein

the changing condition determining means determines that the rotation speed of the compressor needs to be changed at a change rate larger than the change rate of the first control target rotation speed determined by the first target rotation-speed determining means when the maximum permissible rotation speed determined by the guard rotation speed determining means increases and a difference between the actual capacity detected by the actual capacity detecting means and the target capacity determined by the target capacity determining means is larger than a predetermined value.

5. The air conditioner according to claim 4, wherein

the second target rotation-speed determining means determines the second control target rotation speed of the compressor based on a difference between the actual capacity detected by the actual capacity detecting means and the target capacity determined by the target capacity determining means.

6. The air conditioner according to claim 1, further comprising:

a guard rotation speed determining means for determining a maximum permissible rotation speed of the compressor;

an inside air temperature detecting means for detecting

an air temperature inside the compartment; and

a temperature setting unit for setting a requested temperature in the compartment, wherein

the changing condition determining means determines that the rotation speed of the compressor needs to be changed by a change rate larger than the change rate of the second control target rotation speed determined by the first target rotation-speed determining means, when the maximum permissible rotation speed determined by the guard rotation speed determining means increases and a difference between the air temperature inside the passenger compartment, detected by the inside air temperature detecting means, and the requested temperature set by the temperature setting unit is larger than a predetermined value.

7. The air conditioner according to claim 6, wherein

the second target rotation-speed determining means determines the second control target rotation speed of the compressor based on a difference between the air temperature inside the passenger compartment, detected by the inside air temperature detecting means, and the requested temperature set by the temperature setting means.

8. The air conditioner according to claim 1, wherein

the second target rotation-speed determining means determines the second control target rotation speed of the compressor based on a target temperature of air blown into the

compartment.

9. The air conditioner according to claim 1, wherein the second target rotation-speed determining means determines the second control target rotation speed of the compressor by correcting the first control target rotation speed determined by the first target rotation-speed determining means.

10. The air conditioner according to claim 9, wherein the second target rotation-speed determining means corrects the first control target rotation speed determined by the first target rotation-speed determining means based on an air conditioning load of the interior heat exchanger.

11. The air conditioner according to claim 1, wherein the second target rotation-speed determining means determines the second control target rotation speed of the compressor based on the air conditioning load of the interior heat exchanger.

12. A control system for controlling an air conditioner, the air conditioner including a vapor compression refrigerant cycle having an interior heat exchanger for adjusting a temperature of air to be blown into a compartment by performing heat exchange between refrigerant circulating in the vapor compression refrigerant cycle and the air to be

blown into the compartment, and a compressor for compressing refrigerant, the control system comprising:

- an actual capacity detecting means for detecting an actual capacity of the interior heat exchanger;

- a target capacity determining means for determining a target capacity of the interior heat exchanger;

- a first target rotation-speed determining means for determining a first control target rotation speed of the compressor based on a difference between the actual capacity detected by the actual capacity detecting means and the target capacity determined by the target capacity determining means;

- a changing condition determining means for determining whether a rotation speed of the compressor needs to be changed by a change rate larger than a change rate of the control target rotation speed, determined by the first target rotation-speed determining means; and

- a second target rotation-speed determining means for determining a second control target rotation speed larger than the control target rotation speed determined by the first target rotation-speed determining means when the changing condition determining means determines that the rotation speed of the compressor needs to be changed by a change rate larger than the change rate of the first control target rotation speed.